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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/725,509

12/03/2003

Yoshiki Ishizuka

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01/26/2006

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EXAMINER

WILLIAMS, JOSEPH L

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/725,509

**Applicant(s)**

ISHIZUKA ET AL.

**Examiner**

Joseph L. Williams

**Art Unit**

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/14/05, 7/14/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS filed 12/3/03</u> .                |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 1-12 in the reply filed on 09 November 2005 is acknowledged.

Claims 13-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 09 November 2005.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

3. The abstract of the disclosure is objected to because of the use of the legalese language "comprising". Correction is required. See MPEP § 608.01(b).
4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1, 2, and 5-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamanobe (JP 11-040044), of record by Applicant.

Regarding claim 1, Yamanobe ('044) teaches a method of manufacturing a cold cathode type electron-emitting device, forming a pair of electrodes (2, 3) from each other, on a substrate; forming conductive thin films (4), which are electrically connected with said pair of electrodes and have a cracked portion therebetween, on a space between comprising electrodes, which are spaced substrate; said pair of electrodes; forming conductive deposits on the cracked portion of the conductive thin films to form an electron emission section; an subjecting said electron emission section to a treatment

conductive using plasma to expand a gap between deposits on the cracked portion (in view of paragraph 95, part of the carbon is removed, thus forming a gap (read crack).

Regarding claim 2, Yamanobe ('044) teaches the treatment using plasma is reactive ion etching or chemical dry etching.

Regarding claim 5, Yamanobe ('044) teaches chloromethane is at least one compound selected from the group consisting of carbon tetrachloride ( $\text{CCl}_4$ ), chloroform ( $\text{CHCl}_3$ ), methylene chloride ( $\text{CH}_2\text{Cl}_2$ ), trichloroethylene ( $\text{C}_2\text{HCl}_3$ ) and tetrachloroethylene ( $\text{C}_2\text{Cl}_4$ ); said fluoromethane is at least one compound selected from the group consisting of carbon tetrafluoride ( $\text{CF}_4$ ), trifluoromethane ( $\text{CHF}_3$ ), methylene fluoride ( $\text{CH}_2\text{F}_2$ ) and tetrafluoroethylene ( $\text{C}_2\text{F}_4$ ); said chlorofluorocarbon is at least one compound selected from the group consisting of  $\text{CCl}_3\text{F}$ ,  $\text{CCl}_2\text{F}_2$ ,  $\text{CF}_3\text{CHCl}_2$  and

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$\text{CF}_3\text{CH}_2\text{Cl}$ ; and said halon is at least one compound selected from the group consisting of  $\text{CBrClF}_2$  and  $\text{CBrF}_3$ .

Regarding claim 6, Yamanobe ('044) teaches halogen compound is  $\text{CF}_4$  and said electron emission section has, least one bond selected a vicinity of a surface thereof, from the group consisting of C-F, C-F<sub>2</sub> and C-F<sub>3</sub>.

Regarding claim 7, Yamanobe ('044) teaches a gas source of said plasma is  $\text{N}_2$ .

Regarding claim 8, Yamanobe ('044) teaches deposits on said cracked portion extended by about 0.5 nm or more and 1.0 nm or less as a result of said treatment using plasma.

Regarding claim 9, Yamanobe ('044) teaches said pair of electrodes comprise a transition metal selected from the group consisting of Ni, Au, Ag, Pt and Ir.

Regarding claim 10, Yamanobe ('044) teaches the conductive thin film comprises a transition metal selected from the group consisting of Ni, Co, Fe, Pd, Pt and Ir.

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Regarding claim 11, Yamanobe ('044) teaches conductive deposits comprise carbon and are formed by flowing electric current between said pair of electrodes in a gas atmosphere containing carbon atom.

Regarding claim 12, Yamanobe ('044) teaches gas atmosphere containing carbon atom comprises at least one compound selected from the group consisting of alcohol, phenol, thiol, ether, aldehyde, ketone, carboxylic acid and amine.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanobe (JP 11-040044) in view of Miyata (JP 2000-243248), both of record by Applicant.

Regarding claim 3, Yamanobe ('044) teaches all of the claimed limitations except for a gas source of said plasma a gas containing a halogen compound, and said electron emission section has a carbon-halogen bond in a vicinity of a surface thereof.

Further regarding claim 3, Miyata ('248) teaches a gas source of said plasma a gas containing a halogen compound, and said electron emission section has a carbon-

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halogen bond in a vicinity of a surface thereof for the purpose of improving the driving ability of the display.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the halogen compound of Miyata in the display of Yamanobe for the purpose of improving the driving ability of the display.

Regarding claim 4, Miyata ('248) teaches the halogen compound is at least one compound selected from the group consisting of chloromethane, fluoromethane, chlorofluorocarbon and halon.

The reason for combining is the same as for claim 3 above.

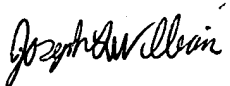
#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph L. Williams whose telephone number is (571) 272-2465. The examiner can normally be reached on M-F (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Joseph L. Williams  
Primary Examiner  
Art Unit 2879